



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/783,968	02/16/2001	Lila Madour	27950-00475USPT	2935

27902 7590 07/20/2004
ERICSSON RESEARCH CANADA
8400 DECARIE BLVD.
MONTREAL, QC H4P 2N2
CANADA

EXAMINER

MEW, KEVIN D

ART UNIT	PAPER NUMBER
----------	--------------

2664

DATE MAILED: 07/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/783,968

Applicant(s)

MADOUR ET AL.

Examiner

Kevin Mew

Art Unit

2664

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/16/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

*Detailed Action**Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1-2, 4-9, 11-17, 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Purnadi et al. (USP 6,708,031) in view of Manning et al. (USP 6,580,699).

Regarding claim 1, Purnadi discloses that in an IP-based Code Division Multiple Access (CDMA) cellular telecommunications network (**IP based CDMA2000 packet switched network**, see lines 36-37, col. 8 and Fig. 5), a method for handing-off a dormant Mobile Node (MN) (**dormant handoff for a mobile station**, see lines 6-8, col. 7) to a target packet zone (**target BSC/PCF**, see line 52, col. 8) having a Packet Data Service Node (PDSN) (**Wireless Gateway (WGW)**, see 48-49, col. 6) and a Base Station Controller (**BSC in CDMA RAN**, see lines 6-7, col. 7 and element 5602, Fig. 5) with a Packet Control Function (BSC/PCF) (**PCF in the BSC**, see line 39, col. 8), the method comprising the steps of:

transmitting from the dormant MN to the BSC/PCF an origination request message comprising an indication that the MN is dormant (**mobile station initiates a dormant handoff by sending an origination message to the BSC in the CDMA2000 RAN**, see lines 65-67, col. 2 and 36-37, col. 8);

Art Unit: 2664

responsive to a receipt of the origination request, sending from the BSC/PCF to the PDSN (WGW) a registration request message (**the target BSC/PCF sends A11 Registration Request message to the target WGW**, see lines 52-53, col. 8), the registration request comprising an indication of an identity of the MN (**the user subscriber is authenticated to check if it subscribes to packet data service**, see lines 41-48, col. 8) and an indication that the MN is dormant (**the DRS option in the A11 Registration Request is set to dormant handoff**, see lines 9-11, col. 8);

transmitting from the PDSN to the BSC/PCF a registration reply (**WGW sends a Registration Reply message to the BSC/PCF after the Registration Request message is verified**, see lines 64-65, col. 8) for requesting an establishment of a traffic channel between the BSC/PCF and the MN (**for creating a A10 connection with the mobile**, see lines 66-67, col. 8);

responsive to a receipt of the registration reply by the BSC/PCF, establishing a traffic channel between the BSC/PCF and the MN (**the BSC/PCF create a binding record for the A10 connection to the mobile**, see lines 66-67, col. 8).

Purnadi does not explicitly show the registration reply comprising an indication that the PDSN has packet data ready to be sent to the MN.

However, Manning discloses a traffic channel is established between mobile station and new BSC (see lines 28-29, col. 7 and steps 166, 168, Fig. 8) when PDSN has data packets to send to the old BSC (see lines 1-2, col. 7 and step 150, Fig. 8). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the dormant handoff procedure of Purnadi with the step of returning the Registration reply message of Manning such that before a new traffic channel is

Art Unit: 2664

established, the Registration reply message comprises an indication that the PDSN has data packets ready to be sent to the mobile station such as the traffic channel establishment procedure taught by Manning. The motivation to do so is for the PDSN to indicate to BSC to establish a traffic channel between BSC/PCF and mobile station should be established based on the fact that PDSN is now ready to send data packets to the mobile station because otherwise there will be no traffic channel for data packets to transmit across from PDSN to mobile station.

Regarding claim 2, Purnadi discloses all the aspects of the claimed invention set forth in the rejection of claim 1 above, except fails to explicitly show the method claimed in claim 2, wherein the step of establishing a traffic channel between the BSC/PCF and the MN is performed responsive to a detection of the indication that the PDSN has packet data ready to be sent to the MN.

However, Manning discloses a traffic channel is established between mobile station and new BSC (see lines 28-29, col. 7 and steps 166, 168, Fig. 8) when PDSN has data packets to send to the old BSC (see lines 1-2, col. 7 and step 150, Fig. 8). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the dormant handoff procedure of Purnadi with the step of establishing a traffic channel during the mobile handoff procedure of Manning such that a new traffic channel is established only when the PDSN has data packets ready to be transmitted to the mobile station such as the new traffic channel setup procedure taught by Manning. The motivation to do so is to establish a new traffic channel between BSC/PCF and mobile station on an as-needed basis when the PDSN is ready to send data packets to the

Art Unit: 2664

mobile station because establishing a new traffic channel requires consuming system resources.

Regarding claim 4, Purnadi discloses the method claimed in claim 1 further comprising the step of:

establishing a Point-to-Point Protocol (PPP) connection between the PDSN (WGW) and the MN (the mobile station and WGW then establishes a PPP connection, see lines 2-3, col. 9).

Regarding claim 5, Purnadi discloses all the aspects of the claimed invention set forth in the rejection of claim 1 above, except fails to disclose the method claimed in claim 1, further comprising after the step of sending from the BSC/PCF to the PDSN a registration request message, and prior to the step of transmitting from the PDSN to the BSC/PCF a registration reply, the step of: upon receipt of the registration request message, detecting that there is no Point-to-Point (PPP) connection set up between the PDSN and the MN.

However, Manning discloses a system and method for establishing a R-P connection during a mobile handoff in a wireless communication system that also comprises BSC, and PDSN (see lines 65-67, col. 1 and Fig. 1). In particular, when a mobile station moves into a new coverage area of a new BSC, a Registration message is triggered to be sent from the MS to the new BSC and the MSC/VLR will check whether the MS is in a PPP session (see lines 66-67, col. 3 and lines 1-12, col. 4).

Art Unit: 2664

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the dormant handoff procedure of Purnadi with the detection step of PPP session during the handoff procedure of Manning such that the wireless communication system will detect whether there is no PPP connection set up between PDSN and the mobile station such as the PPP session detection taught by Manning. The motivation to do so is to avoid establishing a new PPP connection if a PPP session already exists between the PDSN and the mobile station because the existing PPP connection will save the system resources required to establish a new PPP connection for the mobile station during handoff.

Regarding claim 6, Purnadi discloses the method claimed in claim 1, further comprising following the establishment of the traffic channel, the step of reporting to a Mobile Switching Center (MSC) the establishment of the traffic channel (**BSC/PCF sends an Assignment complete message to the MSC**, see lines 1-2, col. 9).

Regarding claim 7, Purnadi discloses the method claimed in claim 1 further comprising, following the receipt of the Registration message by the PDSN, the step of: sending Link Control Protocol (LCP) data packets from the PDSN to the BSC/PCF for the negotiation of a PPP connection (it is noted that in order to establish communications over a point-to-point link, each end of the PPP link must first send LCP packets to configure and test the data link and therefore it is inherent LCP packets will be sent from the PDSN to the BSC/PCF for the negotiation of a PPP connection).

Art Unit: 2664

Regarding claim 8, Purnadi discloses the method claimed in claim 7 further comprising following the step of sending the LCP data packets, the step of:

sending the LCP data packets from the BSC/PCF to the MN (it is noted that in order to establish communications over a point-to-point link, each end of the PPP link must first send LCP packets to configure and test the data link and therefore it is inherent LCP packets will be sent from the BSC/PCF to the mobile station for the establishment of a PPP connection).

Regarding claim 9, Purnadi discloses the method claimed in claim 1, wherein: the origination request message comprises an indication that the MN is dormant and an indication of an identity of the MN;

the registration request message is an A-11 registration request message (**the target BSC/PCF sends the A11 Registration Request message to the target WGW, see lines 52-53, col. 8**) and comprises the indication that the MN is dormant (**the DRS option in the A11 registration Request is set to dormant handoff, see lines 9-11, col. 8**) and the indication of the identity of the MN (**the user subscriber is authenticated to check if it subscribes to packet data service, see lines 41-48, col. 8**); and

the registration reply message is an A-11 registration reply message (**the Registration Reply message is sent from the WGW to the BSC/PCF as an A11 Registration Reply message, see lines 64-65, col. 8 and line 1, col. 9**) and comprises an indication that the PDSN has data to be sent to the MN.

Art Unit: 2664

Regarding claim 11, Purnadi discloses the method claimed in claim 1 wherein the IP-based Code Division Multiple Access (CDMA) cellular telecommunications network is a CDMA 2000 cellular network (**CDMA2000 packet data system**, see lines 37-39, col. 8).

Regarding claim 12, Purnadi discloses an IP-based Code Division Multiple Access (CDMA) cellular telecommunications system comprising:

a target packet zone (**the target BSC/PCF**, see line 52, col. 8 and **BSC/PCF –T**, Fig. 6) to which a dormant Mobile Node (MN) (**MS**) is being handed-off from a source packet zone (**MS and BSC/PCF-S**, see Fig. 6), the target packet zone comprising:

a base Station Controller having a Packet Control Function (BSC/PCF), the BSC/PCF receiving an origination request message from the dormant MN during the hand-off (**the BSC in the CDMA2000 RAN receives an origination message from a mobile station that initiates a dormant handoff**, see lines 65-67, col. 2 and 36-37, col. 8);

and a Packet Data Service Node (PDSN) receiving from the BSC/PCF a registration request for requesting packet data service provision (**the target BSC/PCF sends A11 Registration Request message to the target GW**, see lines 52-53, col. 8), the registration request comprising an identification of the MN (**the user subscriber is authenticated to check if it subscribes to packet data service**, see lines 41-48, col. 8) and an indication that the MN is dormant (**the DRS option in the A11 Registration Request is set to dormant handoff**, see lines 9-11, col. 8);

Art Unit: 2664

wherein responsive to the receipt of the registration request message, the PDSN sends a registration reply message to the BSC/PCF (**WGW sends a Registration Reply message to the BSC/PCF after the Registration Request message is verified**, see lines 64-65, col. 8) for requesting an establishment of a traffic channel between the BSC/PCF and the MN (**for creating a A10 connection with the mobile**, see lines 66-67, col. 8).

Regarding claim 13, Purnadi discloses the IP-based CDMA cellular telecommunications system claimed in claim 12, wherein responsive to the receipt of the registration reply message, the BSC/PCF establishes a traffic channel with the MN (**the BSC/PCF create a binding record for the A10 connection to the mobile**, see lines 66-67, col. 8).

Regarding claim 14, Purnadi discloses the IP-based CDMA cellular telecommunications system claimed in claim 13, wherein following the establishment of the traffic channel, the BSC/PCF sends a Registration message to the PDSN for reporting the successful establishment of the traffic channel.

Regarding claim 15, Purnadi discloses the IP-based CDMA cellular telecommunications system claimed in claim 14, wherein following the receipt of the Registration message, the PDSN sends to the BSC/PCF Link Control Protocol (LCP) data packets for the negotiation of a PPP connection (it is noted that in order to establish communications over a point-to-point link, each end of the PPP link must first send LCP

Art Unit: 2664

packets to configure and test the data link and therefore it is inherent LCP packets will be sent from the PDSN to the BSC/PCF for the negotiation of a PPP connection).

Regarding claim 16, Purnadi discloses the IP-based CDMA cellular telecommunications system claimed in claim 15, wherein the BSC/PCF sends the LCP data packets to the MN (it is noted that in order to establish communications over a point-to-point link, each end of the PPP link must first send LCP packets to configure and test the data link and therefore it is inherent LCP packets will be sent from the BSC/PCF to the mobile station for the establishment of a PPP connection).

Regarding claim 17, Purnadi discloses the IP-based CDMA cellular telecommunications system claimed in claim 12, wherein:

the origination request message comprises an indication that the MN is dormant (**mobile station initiates a dormant handoff by sending an origination message to the BSC in the CDMA2000 RAN**, see lines 65-67, col. 2 and 36-37, col. 8) and an indication of an identity of the MN (**the user subscriber is authenticated to check if it subscribes to packet data service in the Origination message**, see lines 41-48, col. 8);

the registration request message is an A-11 registration request message (**the target BSC/PCF sends the A11 Registration Request message to the target WGW**, see lines 52-53, col. 8) and comprises the indication that the MN is dormant (**the DRS option in the A11 Registration Request is set to dormant handoff**, see lines 9-11, col. 8) and the indication of the identity of the MN (**the user subscriber is authenticated to**

Art Unit: 2664

check if it subscribes to packet data service in the A11 Registration message, see lines 41-48, col. 8); and

the registration reply message is an A-11 registration reply message (the Registration Reply message is sent from the WGW to the BSC/PCF as an A11 Registration Reply message, see lines 64-65, col. 8 and line 1, col. 9) and comprises an indication that the PDSN has data to be sent to the MN.

Regarding claim 19, Purnadi discloses the IP-based CDMA cellular telecommunications system claimed in claim 12, wherein the IP-based Code Division Multiple Access (CDMA) cellular telecommunications system is a CDMA 2000 cellular network (**CDMA2000 packet data system**, see lines 37-39, col. 8).

2. **Claims 3, 10, 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Purnadi in view of Manning et al., and in further view of Abrol et al. (US Publication 2002/0068570).

Regarding claim 3, Purnadi and Manning disclose all the aspects of the claimed invention set forth in the rejection of claim 2 above, except fails to explicitly show the method claimed in claim 2, wherein the indication that the PDSN has packet data ready to be sent to the MN is one of a Data Ready to Sent (DRS) parameter set to a value of 1, and a Data Available Indicator. However, Abrol discloses that when a MS has new data packet to be sent to the network the DRS field will be set to 1 (see lines 12-15, paragraph 0035). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the dormant handoff procedure of Purnadi and

Art Unit: 2664

Manning with the step of setting the DRS field during the mobile handoff procedure of Abrol such that the DRS field is set to 1 when the PDSN has data packets ready to be transmitted to the mobile station such as DRS field being set to 1 when the MS has data packets ready to be sent, as taught by Abrol. The motivation to do so is to raise a flag to indicate to the MS that a traffic channel needs to be established between PDSN and the MS because otherwise there will be no traffic channel for data packets to transmit across.

Regarding claim 10, Purnadi and Manning disclose all the aspects of the claimed invention set forth in the rejection of claim 9 above, except fail to explicitly show the method claimed in claim 9, wherein:

the indication that the MN is dormant is a Data Ready to Send (DRS) parameter set to a value of 0 (DRS=0) and the indication of the identity of the MN is an International Mobile Station Identification Parameter (IMSI); and

the indication that the PDSN has data to be sent to the MN is a Data Ready to Send (DRS) parameter set to a value of 1 (DRS=1).

However, Abrol discloses that the DRS field is set 0, indicating the MS does not have packet data to send and the DRS field is set to 1 when the MS has new packet data to be sent to the network (see lines 10-15, paragraph 0035).

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the dormant handoff procedure of Purnadi with the step of setting the DRS field during the mobile handoff procedure of Abrol such that the DRS field is set to 1 when the PDSN has data packets ready to be transmitted to the mobile station such as DRS field being set to 1 when the MS has data packets ready to be

Art Unit: 2664

sent, as taught by Abrol. The motivation to do so is to raise a flag using DRS to indicate to the MS whether a traffic channel needs to be established between PDSN and the MS because system resources is then required to set up a traffic channel to send data packets across when data packets are ready to be sent, and system resources will be saved by not establishing a traffic channel when no data packets are ready to be sent.

Abrol further discloses that the identity of the MS is IMSI (see lines 8-9, paragraph 0035). It is well known in the art teaching that IMSI of a MS is used to identify a mobile station to a wireless communication network. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to combine the dormant handoff procedure of Purnadi with the usage of the IMSI identifier of a mobile station of Abrol such that the IMSI field is used to identify and authenticate the mobile station during the handoff procedure, as taught by Abrol. The motivation to do so is to use an unique identifier to identify a particular mobile station because the wireless network relies on the IMSI check the corresponding packet data service that is associated with a particular mobile station.

Regarding claim 18, Purnadi and Manning disclose all the aspects of the claimed invention set forth in the rejection of claim 17 above, except fail to explicitly show the IP-based CDMA cellular telecommunications system claimed in claim 17, wherein:

the indication that the MN is dormant is a Data Ready to Send (DRS) parameter set to a value of 0 (DRS=0) and the indication of the identity of the MN is an International Mobile Station Identification Parameter (IMSI); and

the indication that the PDSN has data to be sent to the MN is a Data Ready to Send (DRS) parameter set to a value of 1 (DRS=1).

Art Unit: 2664

However, Abrol discloses that the DRS field is set 0, indicating the MS does not have packet data to send and the DRS field is set to 1 when the MS has new packet data to be sent to the network (see lines 10-15, paragraph 0035).

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the dormant handoff procedure of Purnadi with the step of setting the DRS field during the mobile handoff procedure of Abrol such that the DRS field is set to 1 when the PDSN has data packets ready to be transmitted to the mobile station such as DRS field being set to 1 when the MS has data packets ready to be sent, as taught by Abrol. The motivation to do so is to raise a flag using DRS to indicate to the MS whether a traffic channel needs to be established between PDSN and the MS because system resources is then required to set up a traffic channel to send data packets across when data packets are ready to be sent, and system resources will be saved by not establishing a traffic channel when no data packets are ready to be sent.

Abrol further discloses that the identity of the MS is IMSI (see lines 8-9, paragraph 0035). It is well known in the art teaching that IMSI of a MS is used to identify a mobile station to a wireless communication network. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to combine the dormant handoff procedure of Purnadi with the usage of the IMSI identifier of a mobile station of Abrol such that the IMSI field is used to identify and authenticate the mobile station during the handoff procedure, as taught by Abrol. The motivation to do so is to use an unique identifier to identify a particular mobile station because the wireless network relies on the IMSI check the corresponding packet data service that is associated with a particular mobile station.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure with mobile IP mobility management at dormant handover in CDMA IP based cellular packet data network.

US Patent 6,219,547 to Quaddoura et al.

US Patent 6,061,563 to Lee

US Patent 6,487,406 to Chang et al.

US Patent 6,230,005 to Le et al.

US Publication 2002/0055364 to Wang et al.

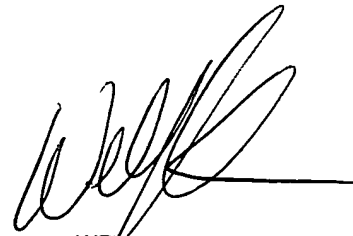
Art Unit: 2664

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 703-305-5300.

The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 703-305-4366. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



WELLINGTON CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

KDM
Art Unit 2664